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Identifying Posttraumatic Stress Disorder and Disparity Among Transgender Veterans Using Nationwide Veterans Health Administration Electronic Health Record Data

Nicholas A. Livingston, PhD,[1,2] Kristine E. Lynch, PhD,[3,4] Zig Hinds,[1] Elise Gatsby, MPH,[3] Scott L. DuVall, PhD,[3,4] and Jillian C. Shipherd, PhD[2,5,6]

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Abstract

Purpose: The prevalence of posttraumatic stress disorder (PTSD) and other psychiatric disorders is high among military veterans and even higher among transgender veterans. Prior prevalence estimates have become outdated, and novel methods of estimation have since been developed but not used to estimate PTSD prevalence among transgender veterans. This study provides updated estimates of PTSD prevalence among transgender and cisgender veterans.

Methods: We examined Veterans Health Administration (VHA) medical record data from October 1, 1999 to April 1, 2021 for 9995 transgender veterans and 29,985 cisgender veteran comparisons (1:3). We matched on age group at first VHA health care visit, sex assigned at birth, and year of first VHA visit. We employed both probabilistic and rule-based algorithms to estimate the prevalence of PTSD for transgender and cisgender veterans.

Results: The prevalence of PTSD was 1.5–1.8 times higher among transgender veterans. Descriptive data suggest that the prevalence of depression, schizophrenia, bipolar disorder, alcohol and non-alcohol substance use disorders, current/former smoking status, and military sexual trauma was also elevated among transgender veterans.

Conclusion: The PTSD and overall psychiatric burden observed among transgender veterans was significantly higher than that of their cisgender peers, especially among recent users of VHA care. These PTSD findings are consistent with prior literature and minority stress theory, and they were robust across probabilistic and two rule-based methods employed in this study. As such, enhanced and careful screening, outreach, and evidence-based practices are recommended to help reduce this disparity among transgender veterans.

Keywords: mental health, prevalence, PTSD, transgender, veteran

Introduction

The lifetime prevalence of posttraumatic stress disorder (PTSD) is estimated to be 6.1%–6.8% in the general population,[1,2] and it is significantly higher among military veterans (12.9%–30.9%).[3–5] Transgender individuals—individuals who identify as a gender that differs from their sex assigned at birth (e.g., trans masculine, trans feminine, nonbinary, gender queer)—experience higher rates of psychiatric disorders, including PTSD, relative to their non-transgender (i.e., cisgender) counterparts.[6] The PTSD prevalence estimates among transgender individuals vary depending on the specific subpopulation but include rates of 42%–44% in the general U.S. population[7,8] and 24%–41% among transgender veterans.[9–11]

According to the minority stress model, psychiatric disorder among transgender individuals is explained by the added distal (e.g., victimization, discrimination) and proximal minority stressors (e.g., concealment, gender dysphoria) that negatively impact their mental health, in addition to the

[1]Behavioral Science Division, National Center for PTSD, VA Boston Healthcare System, Boston, Massachusetts, USA.
[2]Department of Psychiatry, Boston University School of Medicine, Boston, Massachusetts, USA.
[3]VA Informatics and Computing Infrastructure, VA Salt Lake City Health Care System, Salt Lake City, Utah, USA.
[4]Division of Epidemiology, Department of Internal Medicine, University of Utah, Salt Lake City, Utah, USA.
[5]Women's Health Sciences Division, National Center for PTSD, VA Boston Healthcare System, Boston, Massachusetts, USA.
[6]LGBTQ+ Health Program, Veterans Health Administration, Washington, District of Columbia, USA.

ubiquitous general stressors experienced by all people.[12,13] Transgender individuals experience high rates of physical[14–17] and sexual assault,[14–18] intimate partner violence,[8,15,18] and abuse in childhood[8,15] relative to cisgender individuals.

Transgender veterans also face stressors stemming from discriminatory policies (e.g., transgender ban on military service),[19] direct combat or military experiences, and marginalization perpetuated by non-gender-affirming military/veteran culture, including bias-related within-unit aggression.[20] Thus, there is a confluence of varied and high-impact risk factors for PTSD at the intersection of transgender and military identities, and significantly more research is needed to estimate the scale of their effects on transgender veterans.

High rates of trauma exposure and minority stress justify renewed and ongoing efforts to estimate the scope of PTSD and other psychiatric disorders among transgender veterans, validate novel methods of estimation, and potentially develop and implement new or augmented mental health services. The detection and treatment of PTSD is a central mission of the Veterans Health Administration (VHA),[21] as well as to identify subgroups who might be more likely to develop PTSD. These data could inform the essential development and testing of effective treatments that are tailored to unique sub-populations.[22]

However, the most recent published data on transgender veterans end with calendar years 2013[11] and 2014,[9] and there remains considerable heterogeneity regarding methods and recommendations to reliably quantify rates of PTSD and disparity using VHA data.[3,23–26]

Much of the prior research has used rule-based phenotype approaches to define PTSD, with qualifying criteria ranging from a single diagnosis code during a defined observation period[9,11] to more than three diagnosis codes when evaluating pharmacotherapy for PTSD.[23] More recently, Harrington et al.[3] developed a probabilistic algorithm for classifying PTSD by using electronic health record data. With this approach, multiple candidate predictors, including PTSD screening instruments, medications, psychiatric diagnoses, and demographic factors, were used to identify the likelihood of lifetime PTSD among VHA patients.

On the basis of a set of selected predictors, the probabilistic algorithm assigns each veteran a PTSD likelihood ranging from 0 to 1.00. Subsequently applying a probability threshold, which was found to minimize misclassification while maximizing operating characteristics,[3] can further improve PTSD classification.

This novel probabilistic approach for estimating PTSD has not yet been applied among identified transgender veterans. Prior research among transgender veterans using VHA data relied exclusively on a single record of either an inpatient or outpatient diagnosis code to define PTSD caseness,[9–11] and findings from these studies are now outdated. Alternative approaches that consider a wider breadth of data applied to a more contemporary cohort of transgender veterans are needed to fully understand the scope of the psychiatric burden among transgender veterans.

The primary aim of the current study was to derive estimates of PTSD prevalence among transgender veterans relative to a cohort of cisgender veterans using VHA electronic health records data through April 1, 2021. Consistent with extant literature, we hypothesized that transgender veterans would evidence a significantly higher prevalence of PTSD diagnoses and other related psychiatric disorders relative to cisgender veterans.

Methods

Data source and study population

Data for this study were extracted from the VHA Corporate Data Warehouse (CDW)—a nationwide data repository containing data from a variety of clinical settings from fiscal year 2000, updated nightly,[27] enabling a near real-time assessment of the VHA patient population. Study procedures were approved by the University of Utah Institutional Review Board.

All veterans who enrolled in VHA on or after October 1, 1999 were considered for inclusion. In line with previous VHA research, veterans with a record of a gender identity disorder/gender dysphoria diagnosis,[28] defined by the presence of one or more International Classification of Diseases, Ninth Revision (ICD-9)[29] or ICD, Tenth Revision (ICD-10) codes[30] in the electronic health record from October 1, 1999 through the date that data were extracted for analysis (April 1, 2021), were included in the transgender cohort (Supplementary Table S1). Veterans without a record of these codes were considered cisgender.[31,32] Gender identity data are not reliably available in VHA data, nor is there any other indication of transgender identity beyond diagnostic codes.

Transgender individuals were matched 1:3 to cisgender veterans who had the same sex assigned at birth, year of their first VHA health care visit, and age group at their first VHA health care visit (e.g., 18–29, 30–39; Table 1) to eliminate confounding effects attributable to sex assigned at birth, age, and time/generation. We matched on age and sex assigned at birth in large part, because it is a variable included in the probabilistic algorithm and is a predictor of receiving a PTSD diagnosis.[33]

Primary outcomes

For the probabilistic algorithm validated by Harrington et al.,[3] we utilized coefficients from their least absolute shrinkage and selection operator penalized regression modeling to assign each veteran a probability of having ''likely PTSD,'' ''likely not PTSD,'' and ''possible PTSD''. The final model included inputs of documented scores on the following 11 variables: (1) two or more outpatient PTSD ICD codes, (2) one or more inpatient PTSD ICD codes, (3) positive Primary Care-PTSD screen (PC-PTSD[34]; score 3–4), (4) PTSD diagnosis by a mental health professional, (5) PTSD diagnosis by a primary care physician, (6) existence of PTSD Checklist for DSM-5 (PCL-5)[35] in their medical record, (7) VHA service connection for PTSD, (8) co-occurring depression diagnosis, (9) ethnicity, (10) age, and (11) binary sex assigned at birth (male/female). The three probabilities summed to 1.0, and veterans were placed in a mutually exclusive PTSD category based on the highest of the three probabilities.

Veterans with insufficient or missing data on sex assigned at birth or age were omitted from the analyses. Consistent with Harrington et al.,[3] to create case (likely PTSD) and control (likely not PTSD) cohorts we then applied their probability cutoff of 0.7 to both the ''likely PTSD'' (>0.7) and ''likely not PTSD'' models. Those who did not meet one of the two cutoffs were not classified.

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Table 1. Characteristics of the Analytic Sample by Gender Identity Group

Demographics	*Total* N = *39,980,* n *(%)*	*Cisgender* N = *29,985,* n *(%)*	*Transgender* N = *9995,* n *(%)*
Sex assigned at birth[a]			
Female	14,184 (35.5)	10,638 (35.5)	3546 (35.5)
Male	25,796 (64.5)	19,347 (64.5)	6449 (64.5)
Age at first VHA visit			
Mean (SD)	39.32 (15.1)	39.41 (15.1)	39.10 (15.1)
Median	36.0	36.0	36.0
Quartile 1, Quartile 3	26.0, 53.0	26.0, 52.0	26.0, 52.0
Age group at first VHA visit[a]			
18–29	15,852 (39.6)	11,889 (39.6)	3963 (39.6)
30–39	6112 (15.3)	4584 (15.3)	1528 (15.3)
40–49	6224 (15.6)	4668 (15.6)	1556 (15.6)
50–59	7104 (17.8)	5328 (17.8)	1776 (17.8)
60–69	3808 (9.5)	2856 (9.5)	952 (9.5)
70–79	768 (1.9)	576 (1.9)	192 (1.9)
80+	112 (0.3)	84 (0.3)	28 (0.3)
Year of first visit[a,b]			
1999–2005	10,912 (27.3)	8184 (27.3)	2728 (27.3)
2006–2010	9216 (23.1)	6912 (23.1)	2304 (23.1)
2011–2015	12,016 (30.1)	9012 (30.1)	3004 (30.1)
2016–2021	7836 (19.6)	5877 (19.6)	1959 (19.6)
Race			
White	26,878 (67.2)	19,021 (63.4)	7857 (78.6)
Black	6524 (16.3)	5504 (18.4)	1020 (10.2)
Asian	588 (1.5)	467 (1.6)	121 (1.2)
American Indian	377 (0.9)	259 (0.9)	118 (1.2)
Pacific Islander	368 (0.9)	295 (1.0)	73 (0.7)
Unknown	5245 (13.1)	4439 (14.8)	806 (8.1)
Ethnicity			
Hispanic or Latino	3160 (7.9)	2508 (8.4)	652 (6.5)
Not Hispanic or Latino	33,262 (83.2)	24,313 (81.1)	8949 (89.5)
Unknown	3558 (8.9)	3164 (10.6)	394 (3.9)
Mental health related conditions/behaviors			
Depression			
No	20,237 (50.6)	17,700 (59.0)	2537 (25.4)
Yes	19,743 (49.4)	12,285 (41.0)	7458 (74.6)
Schizophrenia			
No	38,733 (96.9)	29,445 (98.2)	9288 (92.9)
Yes	1247 (3.1)	540 (1.8)	707 (7.1)
Bipolar disorder			
No	36,373 (91.0)	28,257 (94.2)	8116 (81.2)
Yes	3607 (9.0)	1728 (5.8)	1879 (18.8)
Military sexual trauma			
No	31,047 (77.7)	23,071 (76.9)	7976 (79.8)
Yes	4660 (11.7)	2813 (9.4)	1847 (18.5)
Decline to answer	78 (0.2)	54 (0.2)	24 (0.2)
Unknown	4195 (10.5)	4047 (13.5)	148 (1.5)
Smoking			
Current/former smoker	20,404 (51)	14,337 (47.8)	6067 (60.7)
Never smoker	14,915 (37.3)	11,214 (37.4)	3701 (37.0)
Unknown	4661 (11.7)	4434 (14.8)	227 (2.3)
Non-alcohol substance use disorder			
No	36,051 (90.2)	27,832 (92.8)	8219 (82.2)
Yes	3929 (9.8)	2153 (7.2)	1776 (17.8)
Alcohol use disorder			
No	32,362 (80.9)	25,057 (83.6)	7305 (73.1)
Yes	7618 (19.1)	4928 (16.4)	2690 (26.9)

(*continued*)

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Table 1. (Continued)

Demographics	Total N = 39,980, n (%)	Cisgender N = 29,985, n (%)	Transgender N = 9995, n (%)
Psychiatric-related medications			
SSRI			
No	24,136 (60.4)	19,961 (66.6)	4175 (41.8)
Yes	15,844 (39.6)	10,024 (33.4)	5820 (58.2)
Tricyclic			
No	35,216 (88.1)	26,851 (89.5)	8365 (83.7)
Yes	4764 (11.9)	3134 (10.5)	1630 (16.3)
Benzodiazepine			
No	30,334 (75.9)	23,923 (79.8)	6411 (64.1)
Yes	9646 (24.1)	6062 (20.2)	3584 (35.9)

With the exception of the matching variables, all other differences between cisgender and transgender veterans were significant at the $p < 0.001$ level.
[a]Matching variable.
[b]Matching was completed by using distinct calendar year and combined in the table for simplicity.
SD, standard deviation; SSRI, selective serotonin reuptake inhibitor; VHA, Veterans Health Administration.

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As all prior work on PTSD among transgender veterans used only diagnosis codes[9–11] to estimate PTSD prevalence, for a more parallel comparison we also employed two separate ICD-based approaches. First, we used the validated approach from Harrington et al.,[3] whereby ''likely PTSD'' was defined as having a record of one or more PTSD diagnosis codes (ICD-9 code 309.81; ICD-10 codes F43.x) from an inpatient encounter, indexed by PTSD ICD code, or two or more PTSD ICD diagnosis codes from outpatient encounters with a mental health professional.

''Possible PTSD'' was defined as having a PTSD diagnosis code but not meeting the full criteria set for ''likely PTSD'' (e.g., having only one mental health outpatient diagnosis). We defined ''likely not PTSD'' as having no recorded PTSD diagnoses among veteran patients who had their first visit no less than 3 months prior and had 10 or more documented visits, operationalized as adequate VHA care engagement for the purposes of evaluating the presence or absence of PTSD. Although Harrington et al.[3] excluded veterans with schizophrenia and bipolar disorder from their classification, we estimated PTSD prevalence with and without such patients for comparison. Second, we evaluated PTSD prevalence by using a less stringent definition of one or more ICD codes recorded in any clinic setting.

Lastly, the probabilistic and two rule-based algorithms were repeated on a subset of transgender veterans with recent engagement in VHA services. Recent engagement was defined as those with one or more clinical encounters in the prior 24 months (March 30, 2019 to March 30, 2021). Although estimating PTSD prevalence was our primary aim in this study, we also include estimated prevalence of depression, schizophrenia, bipolar disorder, alcohol use disorder, non-alcohol-related substance use disorder, tobacco use, military sexual trauma (MST), and selected psychiatric medications for descriptive purposes.

Data analysis

Descriptive statistics were calculated for demographic characteristics, non-PTSD psychiatric conditions, risk behaviors, and selected medications and compared between transgender and cisgender veterans by using *t*-tests (continuous variables) and chi-square tests (categorical variables) as appropriate. Prevalence of PTSD and 95% confidence intervals (CIs) were calculated, and between-group comparisons were made with prevalence ratios (PRs).

We further compared transgender and cisgender veterans who were defined as ''likely PTSD'' by the probabilistic model (>0.7, based on Harrington et al.'s cut score),[3] according to the 11 demographic and clinical characteristics included in the final model. We performed similar comparisons for transgender and cisgender veterans who were classified as ''likely not PTSD.''

Results

In total, 9995 transgender veterans based on a diagnosis code indicating gender identity disorder/gender dysphoria diagnosis were matched to 29,985 cisgender veterans. The two groups were identical with respect to age at and year of first VHA visit and sex assigned at birth. See Table 1 for demographic characteristics of the sample.

PTSD via probabilistic approach

The probabilistic approach classified all 39,980 veterans in the analytic sample. Among transgender veterans, 41.0% were determined to have ''likely PTSD'' compared with 25.9% among matched cisgender veterans (Fig. 1, left side; PR = 1.72 [95% CI = 1.67–1.78]). After applying the 0.7 probability threshold to increase the precision and specificity of the case and control cohort definitions (Fig. 1, right side), the sample size of the transgender cohort decreased by 31% and the cisgender cohort by 21%. Correspondingly, and as displayed in Figure 1A and B, the proportion of those with ''likely PTSD'' also decreased for both transgender (29.8%) and cisgender (16.3%) cohorts but the disparity in PTSD prevalence was largely similar to what was observed without applying the threshold (PR = 1.58 [95% CI = 1.53–1.63]). Displayed in Supplementary Table S2 (''likely PTSD'') and Supplementary Table S3 (''likely not PTSD'') are the descriptive breakdowns of each variable included in the probabilistic model.

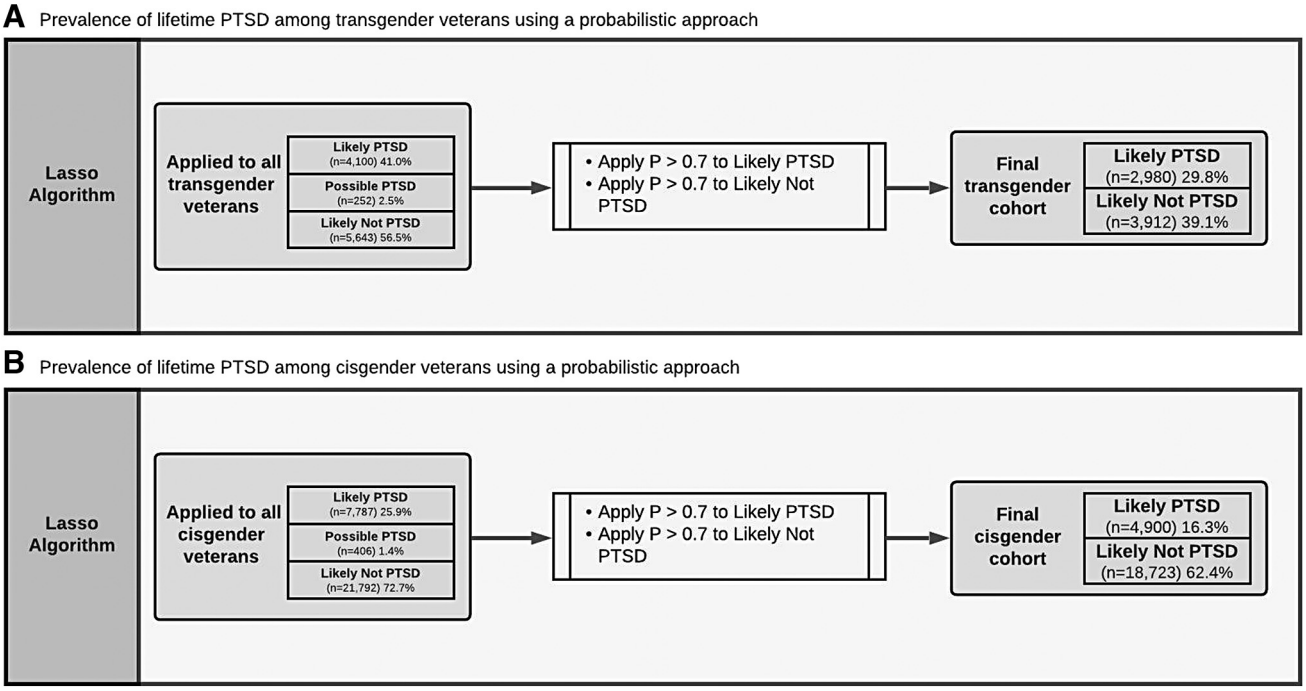

FIG. 1. Prevalence of PTSD by gender identity group according to a probabilistic approach to define PTSD status. **(A)** Prevalence of lifetime PTSD among transgender veterans using a probabilistic approach. **(B)** Prevalence of lifetime PTSD among cisgender veterans using a probabilistic approach. PTSD, posttraumatic stress disorder.

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PTSD via rule-based approach

Using the stricter rule-based ICD approach, the prevalence of PTSD was largely similar to what was observed using the probabilistic approach. After excluding 267 veterans without adequate VHA engagement, a sample of 9728 transgender and 23,421 cisgender veterans remained (Fig. 2A, B). The prevalence of ''likely PTSD'' was 40.3% among transgender veterans (95% CI = 39.4–41.3) compared with 26.6% (95% CI = 26.0–27.1) among cisgender veterans.

After excluding those with a record of bipolar disorder or schizophrenia and those without sufficient VHA engagement (Fig. 2C, D),[3] the observed prevalence of PTSD was slightly lower in both groups (34.4% vs. 24.4%, respectively). Using the less strict ever/never ICD approach to define PTSD (first step of Fig. 2A, B), more veterans with PTSD were observed, among both transgender (46.9%) and cisgender veterans (27.1%).

Of the 9995 transgender veterans evaluated, 87.32% ($n = 8734$) had used the VHA at least once in the previous 2 years. As observed in the full cohort, in the subanalysis the prevalence of PTSD varied across detection method, ranging from 32% in the probabilistic method to 49.5% in the least strict rule-based approach (i.e., loose ICD definition) for recent users and 14.5%–29.2%, respectively, for the non-recent users (Table 2). Regardless of the method used, the prevalence rate was statistically significantly higher among recent users.

Discussion

In this study, we used validated probabilistic modeling and rule-based approaches to derive separate estimates of PTSD prevalence for transgender and cisgender veterans. Consistent with our hypothesis, we found that transgender veterans evidenced a significantly higher prevalence of PTSD diagnoses (1.5–1.8 times more likely) compared with cisgender veterans across the three applied estimation methods.

Although the overall prevalence of PTSD among transgender veterans was within range of prior transgender veteran studies,[9–11] our overall estimates for transgender veterans were lower than those reported in recent non-veteran transgender health studies.[7,8] These differences could be attributable to heavy reliance on self-reported PTSD symptom data in prior non-veteran research, or potentially differences in PTSD prevalence as a function of time. For example, we observed that PTSD disparities were more pronounced among recent users of VHA care (Table 2), which updates prior estimates[9–11] and adds urgency to the need for continuous monitoring, outreach, and intervention.

These findings provide further support for recent work validating novel methods of estimating PTSD prevalence using VHA data,[3] and they demonstrate the utility of the probabilistic approach. The traditional rule-based method relies on the presence of PTSD diagnosis codes to identify patients with PTSD and infers the absence of PTSD if codes are not present in the record. On the other hand, using a highly rigorous probabilistic approach, we derived probabilities not only of having lifetime PTSD but also of not having lifetime PTSD, based on a set of factors observed in patients' medical records (Supplementary Tables S1 and S2). This electronic health record-based PTSD phenotyping approach is better suited for deriving more precise estimates of caseness and holds great utility with respect to tracking disparities over time, and patient monitoring for prevention and treatment outreach.

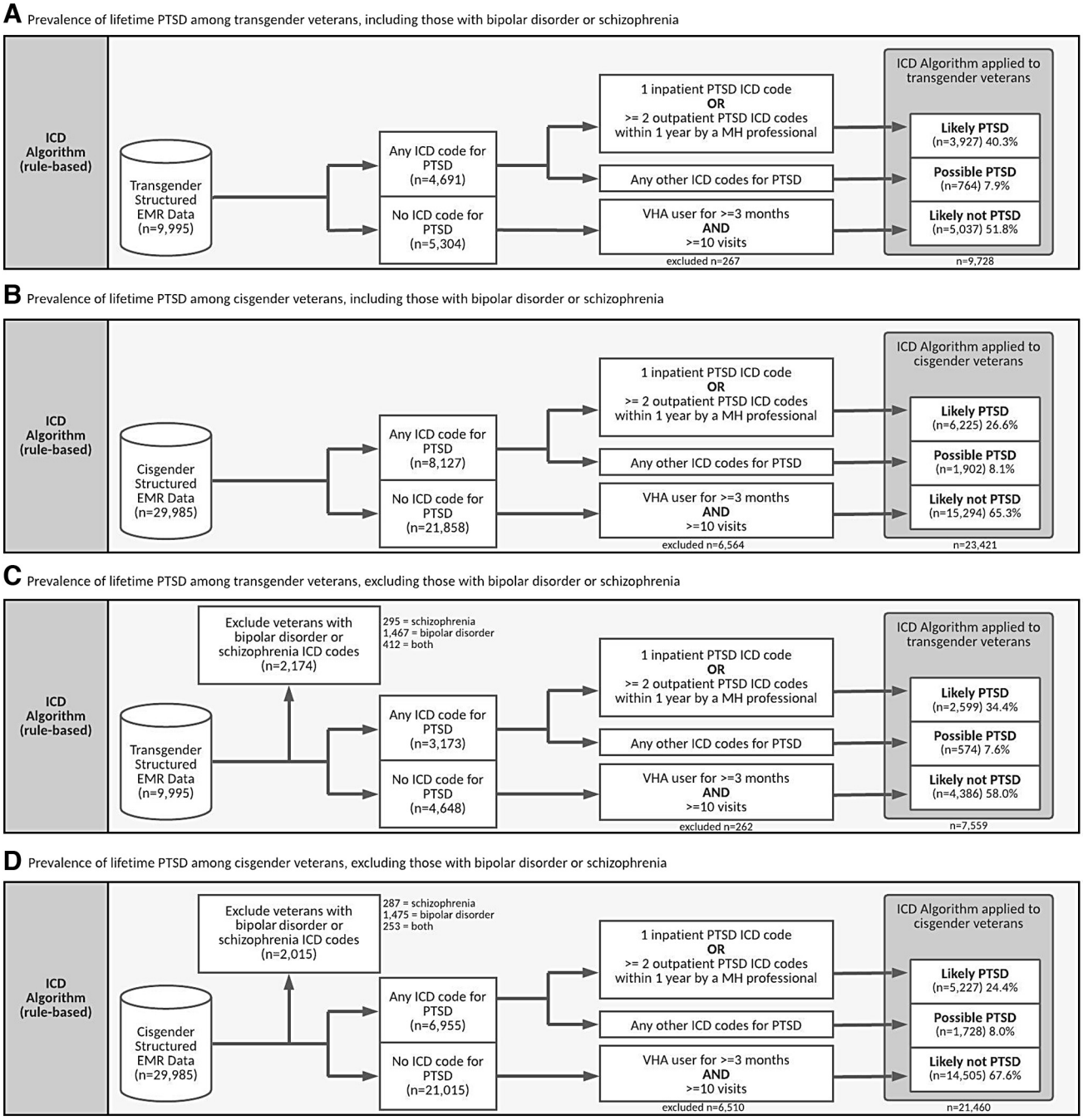

FIG. 2. Prevalence of PTSD by gender identity group according to a rule-based approach to define PTSD status. **(A)** Prevalence of lifetime PTSD among transgender veterans, including those with bipolar disorder or schizophrenia. **(B)** Prevalence of lifetime PTSD among cisgender veterans, including those with bipolar disorder or schizophrenia. **(C)** Prevalence of lifetime PTSD among transgender veterans, excluding those with bipolar disorder or schizophrenia. **(D)** Prevalence of lifetime PTSD among cisgender veterans, excluding those with bipolar disorder or schizophrenia. EMR, electronic medical record; ICD, International Classification of Diseases; MH professional, mental health professional; VHA, Veterans Health Administration.

These data represent the most current and robust estimates of the prevalence of PTSD and other psychiatric disorders among transgender veterans across VHA. Beyond PTSD, which was the primary focus of this study, other psychiatric diagnoses that we report for descriptive purposes are worth explicit mention. Transgender veterans were significantly more likely to have recorded diagnoses of depression (75% vs. 41%), schizophrenia (7% vs. 2%), bipolar disorder (19% vs. 6%), alcohol use disorder (27% vs. 16%) and non-alcohol substance use disorder (18% vs. 7%), and current/former smoking status (61% vs. 48%).

Transgender veterans were more likely to have been exposed to MST at 19% as compared with 9% of cisgender veterans. Commensurate with higher psychiatric burden,

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Table 2. Prevalence of Posttraumatic Stress Disorder among Transgender Veterans by Algorithm and Veterans Health Administration Utilization Category

	Non-recent users (n = *1261*)	*Recent users*[a] (n = *8734*)	
Algorithm	*Prevalence (95% CI)*		*Prevalence ratio*[b] *(95% CI)*
Probabilistic (0.7)	14.5% (12.7–16.6)	32.0% (31.0–32.9)	2.19 (1.91–2.52)
Strict ICD[c]	23.5% (21.1–26.1)	42.5% (41.5–43.6)	1.81 (1.62–2.01)
Loose ICD[d]	29.2% (26.7–31.7)	49.5% (48.4–50.5)	1.70 (1.55–1.85)

[a]Defined as having at least one VHA health care encounter in the prior 24 months.
[b]The prevalence ratio compares transgender recent users to transgender non-recent users.
[c]Uses the definition contained in the subheading of Figure 2A.
[d]Record of one or more ICD codes.
CI, confidence interval, ICD, International Classification of Diseases.

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psychiatric prescriptions were more common among transgender veterans in approximately similar proportions relative to the observed psychiatric disparities. Given that additional interventions may be needed to address co-occurring psychiatric disorder(s), this finding was not surprising. This indicates greater medical/psychiatric service utilization and medication use among those with mental health needs.

For providers, these findings suggest a sensitivity to the undue burdens carried by transgender veterans, and they suggest that screening for minority stressors that give rise to psychiatric symptoms is indicated.[13] Drivers of psychiatric disorder, including MST, traumatic events (bias and non-bias related), and other high-impact stressors (e.g., discrimination, identity concealment),[12,20,36] warrant careful screening and may provide necessary contextual information that facilitates appropriate patient referrals, treatment planning, and productive patient–provider communication.[37]

Another point of assessment relates to gender, as VHA does not currently have a reliable mechanism to record gender identity separate from sex assigned at birth. Expanded gender identity options in VHA medical records are in process and could lead to improved and more accurate estimates of PTSD prevalence with a fuller or even complete sample of transgender veterans represented.

Gender-affirming treatments are recommended for transgender veterans, with an increase in attention on treatments that address trauma exposure, PTSD, chronic discrimination, and possible co-occurring psychiatric disorders in gender-affirming ways.[12,38,39] Gender dysphoria is a considerable driver of psychiatric distress and, unfortunately, transgender veterans are not able to access comprehensive treatment for gender dysphoria in VHA. It is known that transgender people with access to surgical care have better mental health outcomes,[40] including among transgender veterans,[41] yet surgical care is excluded from veterans' medical benefits package.[42] Fortunately, efforts are underway for VHA to provide a more inclusive health care package that includes medically necessary transition-related surgical procedures for transgender veterans.[43]

Limitations

There are limitations that warrant discussion. First, transgender veterans were defined only by the presence of gender identity disorder/gender dysphoria diagnosis codes. Veterans who use VHA are generally in poorer health than their non-VHA using peers,[44] so these data may not be generalizable to transgender veterans in the community. Although our identification methods have been used consistently and with a high degree of accuracy in VHA,[45] the codes do not permit direct disaggregation of trans feminine, trans masculine, and nonbinary transgender persons.

In this study, to create cohorts with equal distribution of characteristics associated with both transgender identification and PTSD, we relied on structured sex fields within the CDW for matching. Although some degree of data entry error is inevitable for all veterans regardless of their self-identified gender, the degree of misclassification of sex assigned at birth is likely higher among transgender veterans than cisgender veterans.

A complication in VHA data is that veterans are permitted to change the sex assigned at birth field to match their self-identified gender. Consequently, the sex assigned at birth field may be an amalgamation of actual sex assigned at birth data and gender identity data, which may have led to imperfect matching and residual confounding. We, nevertheless, matched on sex assigned at birth due to this being a variable included in the validated probabilistic model.

Further, veterans with gender dysphoria but who lack VHA documentation and those who do not meet the clinical criteria for this diagnosis were not represented in this analysis. However, using simple diagnosis codes permitted a direct comparison to previous research[9–11] and the compilation of a more straightforward comparison group.

Conclusion

Transgender veterans who use VHA services are significantly more likely to be diagnosed with PTSD and other psychiatric diagnoses relative to cisgender veterans. These disparities signal a need for ongoing monitoring, outreach, prevention, and treatment to offset risk and address potential unmet treatment need among transgender veterans. Extant literature highlights the role of minority stress in accounting for elevated rates of psychiatric disorder among transgender veterans.

Although systems-level change to improve access to comprehensive treatment for gender dysphoria is underway, provider-level gender affirmation and gender-affirming care are essential. It is possible that transgender veterans would also benefit from evidence-based PTSD treatment that is tailored to the compounded effects of trauma and minority stress.

Authors' Contributions

N.A.L., K.E.L., and J.C.S. developed the study concept. K.E.L. performed data analysis and drafted the results section. E.G. performed data extraction and management. N.A.L., K.E.L., J.C.S., Z.H., E.G., and S.L.D. contributed to data interpretation. N.A.L. drafted the article. K.E.L., J.C.S., Z.H., E.G., and S.L.D. contributed to article writing and revisions. All authors reviewed and approved the article before submission.

Disclaimer

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Author Disclosure Statement

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Supplementary Material

Supplementary Table S1
Supplementary Table S2
Supplementary Table S3

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Address correspondence to:
Nicholas A. Livingston, PhD
Behavioral Science Division
National Center for PTSD
VA Boston Healthcare System
150 South Huntington Avenue
Boston, MA 02130
USA

E-mail: nicholas.livingston@va.gov

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